

## DETAILED ACTION

### *Examiner's Amendment*

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

(a) Regarding the title; the beginning of the title on some documents states SIGNAL SEPARATING APPARATUS and some states SIGNAL SEPARATION DEVICE.

(b) The title is selected according with the original specification filed on 09/29/2006.

(c) Authorization for this examiner's amendment was given in a telephone interview with Andrew Harry, Registration Number 56,959, on July 28, 2009.

(d) Examiner's Amendment to the Title

**The Title of the Application Serial No. 10/594,983 is stated:**

**SIGNAL SEPARATING APPARATUS, SIGNAL SEPARATING METHOD, SIGNAL SEPARATING PROGRAM AND RECORDING MEDIUM;**  
and delete any other Title referring to this Application, such as ~~SIGNAL SEPARATION DEVICE, SIGNAL SEPARATION METHOD, SIGNAL SEPARATION PROGRAM AND RECORDING MEDIUM.~~

***Allowable Subject Matter***

2. **Claims 1-31** are allowed.

3. The following is an examiner's statement of reasons for allowance:

**Claims 1-3 and 31**, are allowable because the closest prior art, Sawada et al. [U.S. Patent No. 7,039,546], does not apply in view of, assignment to, the same inventors (Hiroshi Sawada, Ryo Mukai, Shoko Araki and Shoji Makimo) at the time this invention was made; see Applicant's statement filed 05/04/2009.

Further Erten et al. [U.S. Patent No. 6,625,587] (hereafter Erten), fail to anticipate or render obvious a signal separating apparatus which separates mixed signals consisting of a mixture of source signals originated from a plurality of signal sources into the source signals, comprising:

a normalizing section which normalizes a complex vector generated by using the mixed signals in the frequency domain to generate a normalized vector excluding frequency dependency of the complex vector; in combination with all other limitations in the claim(s) as claimed and defined by applicant.

**Claims 4-21 and 28**, are allowable because the closest prior art, Sawada et al. [U.S. Patent No. 7,039,546], does not apply in view of, assignment to, the same inventors (Hiroshi Sawada, Ryo Mukai, Shoko Araki and Shoji Makimo) at the time this invention was made; see Applicant's statement filed 05/04/2009.

Further Erten, fail to anticipate or render obvious a signal separating apparatus which separates mixed signals consisting of a mixture of source signals originated from a plurality of signal sources into the source signals, comprising:

a basis vector normalizing section which normalizes basis vectors constituting the generalized inverse matrix to obtain normalized basis vectors; in combination with all other limitations in the claim(s) as claimed and defined by applicant.

**Claims 22-27 and 30**, are allowable because the closest prior art, Sawada et al. [U.S. Patent No. 7,039,546], does not apply in view of, assignment to, the same inventors (i.e., Hiroshi Sawada, Ryo Mukai, Shoko Araki and Shoji Makimo) at the time this invention was made; see Applicant's statement filed 05/04/2009.

Further Erten, fail to anticipate or render obvious a signal separating apparatus which separates mixed signals consisting of a mixture of source signals originated from a plurality of signal sources into the source signals, comprising:

a separated signal generating section which extracts a predetermined ordinal number-th element of the mixed-signal vector corresponding to the time-frequency of the normalized vector that belongs to the k-th cluster and generates a separated-signal vector having the element as the k-th element; in combination with all other limitations in the claim(s) as claimed and defined by applicant.

**Claim 29**, is allowable because the closest prior art, Sawada et al. [U.S. Patent No. 7,039,546], does not apply in view of, assignment to, the same inventors (i.e., Hiroshi Sawada, Ryo Mukai, Shoko Araki and Shoji Makimo) at the time this invention was made; see Applicant's statement filed 05/04/2009.

Further Erten, fail to anticipate or render obvious a signal separating apparatus which separates mixed signals consisting of a mixture of source signals originated from a plurality of signal sources into the source signals, comprising:

normalizing basis vectors which are columns of a generalized inverse matrix of the inputted separation matrix, clustering the normalized basis vectors, and selecting selection signals including a target signal from among the inputted separated signals by using variance of the clusters as an indicator; in combination with all other limitations in the claim(s) as claimed and defined by applicant.

**Conclusion**

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Felix Suarez, whose telephone number is (571) 272-2223. The examiner can normally be reached on weekdays from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571) 272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular communications and for After Final communications.

July 28, 2009

/Felix E Suarez/

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Examiner, Art Unit 2857

/Hal D Wachsman/  
Primary Examiner, Art Unit

/Eliseo Ramos-Feliciano/  
Supervisory Patent Examiner, Art Unit 2857